Toggle navigation

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Military laser technology could mimic gunshots and project ghostly voices into the air

By E&T editorial staff

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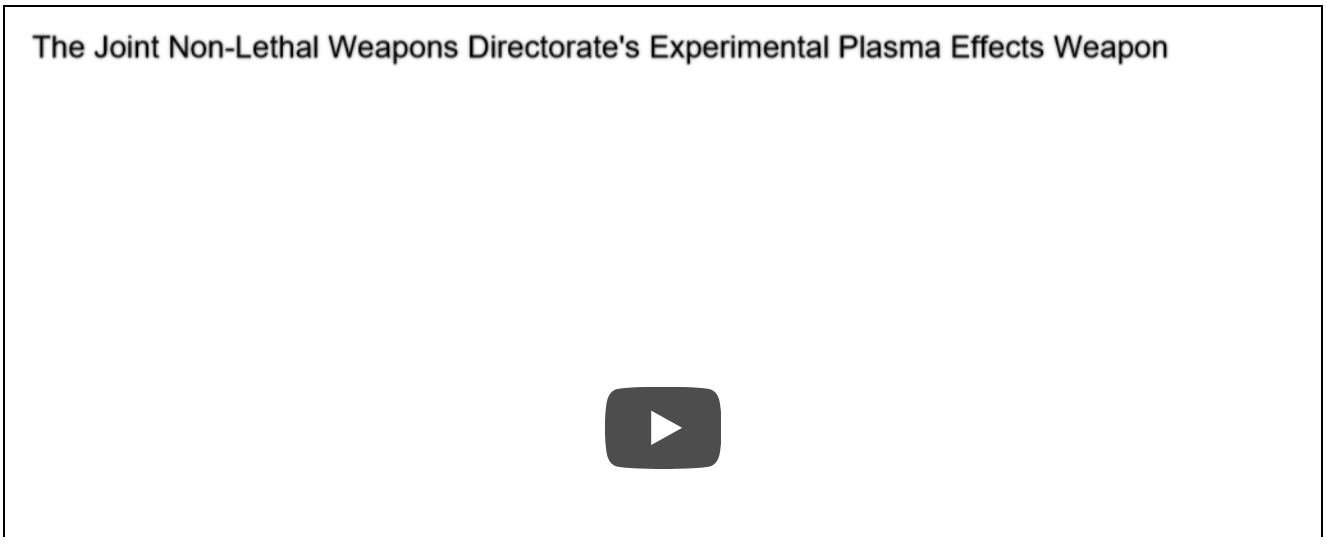
According to reports, the US military is in the process of developing a non-lethal weapon capable of creating the sound of people speaking or weapons firing in mid-air.

Some noisemakers are already in use by soldiers and law enforcement, such as grenades used non-lethally to stun and disorient opponents.

This new device is under development as part of the Pentagon's Joint Non-Lethal Weapons Program (JNLWP), which seeks to develop technologies such as incapacitation devices for peacekeeping and humanitarian work, but also in counterterrorism, counterinsurgency, stability operations and to fight piracy.

The device uses the 'Laser-Induced Plasma Effect'. It is comprised of a femtosecond laser, which emits a beam of highly focused light in pulses for several seconds. This causes the electrons from molecules of air to be stripped away from their nuclei, forming plasma: a field of electrically charged gas.

When this plasma is targeted with a second laser, it is manipulated such that it emits light and sound. Using precisely the right wavelengths of visible light in this second laser allows for the plasma ball to be tuned, generating very specific sounds. Mimicking the disembodied sounds of human voices or gunshots could allow for the US military to deceive or frighten opponents from a safe distance.



“We’re this close to getting it to speak to us, I need three of four more kilohertz,” David Law, head of the JNLWP’s technology division, told *Defense One* at an exhibition in Washington DC.

The device is different to conventional lamps and speakers in that it is capable of creating effects at a specific, distant location, allowing for precise targeting. Law commented that this is the first non-lethal weapon that could have a range of tens of kilometres. Due to a certain physical effect (the Kerr effect), it is actually easier to create these light and sound effects at a distance.

Law and his colleagues working on the JNLWP hope to have refined a single system capable of mimicking human speech and other familiar noises in three to five years.